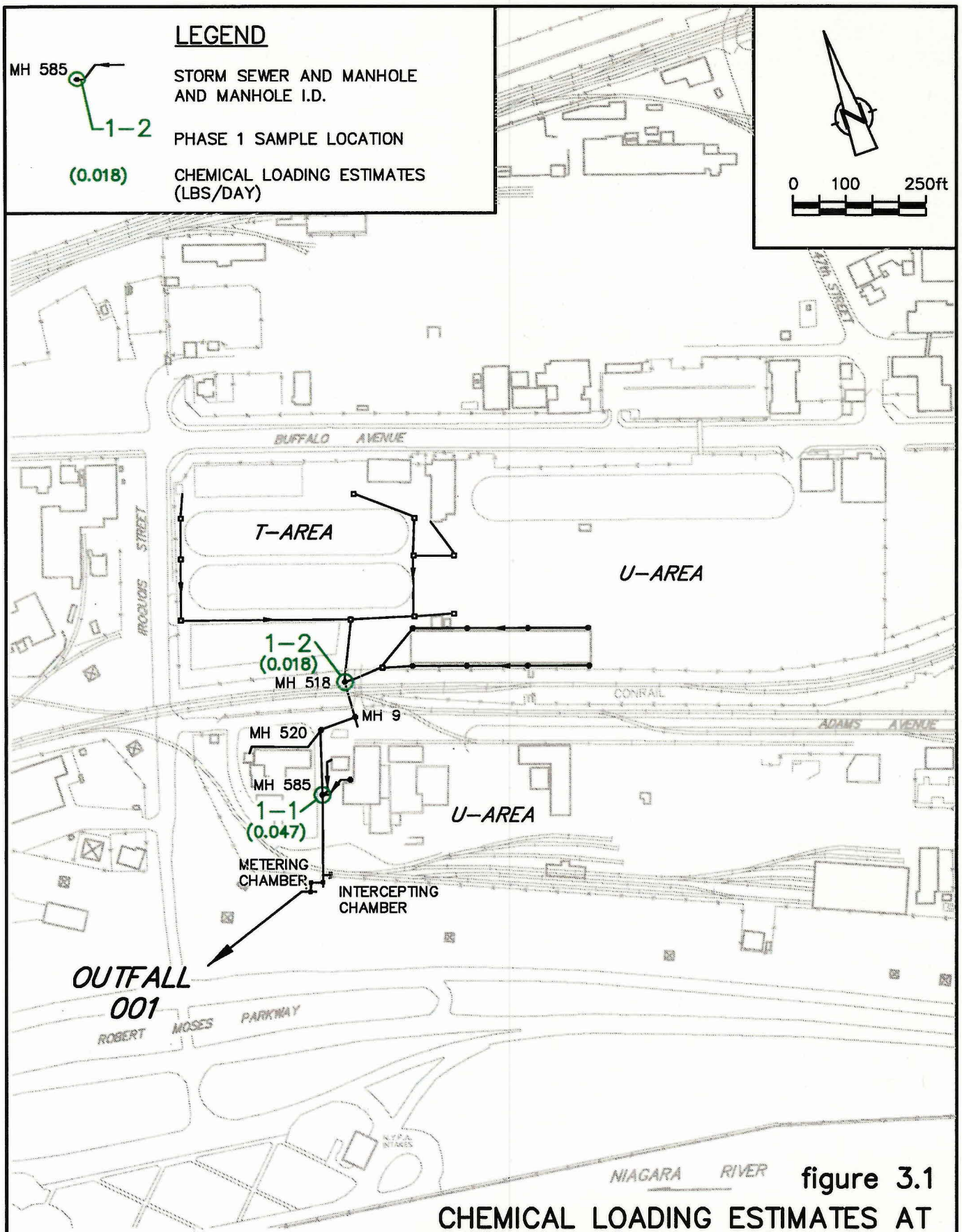

figure 3.1

CHEMICAL LOADING ESTIMATES AT PHASE I SAMPLING LOCATIONS – 001 OUTFALL

Occidental Chemical Corporation – Buffalo Avenue Plant

CRA

2583 (170) AUG 29/95(W) REV.0 (P864)

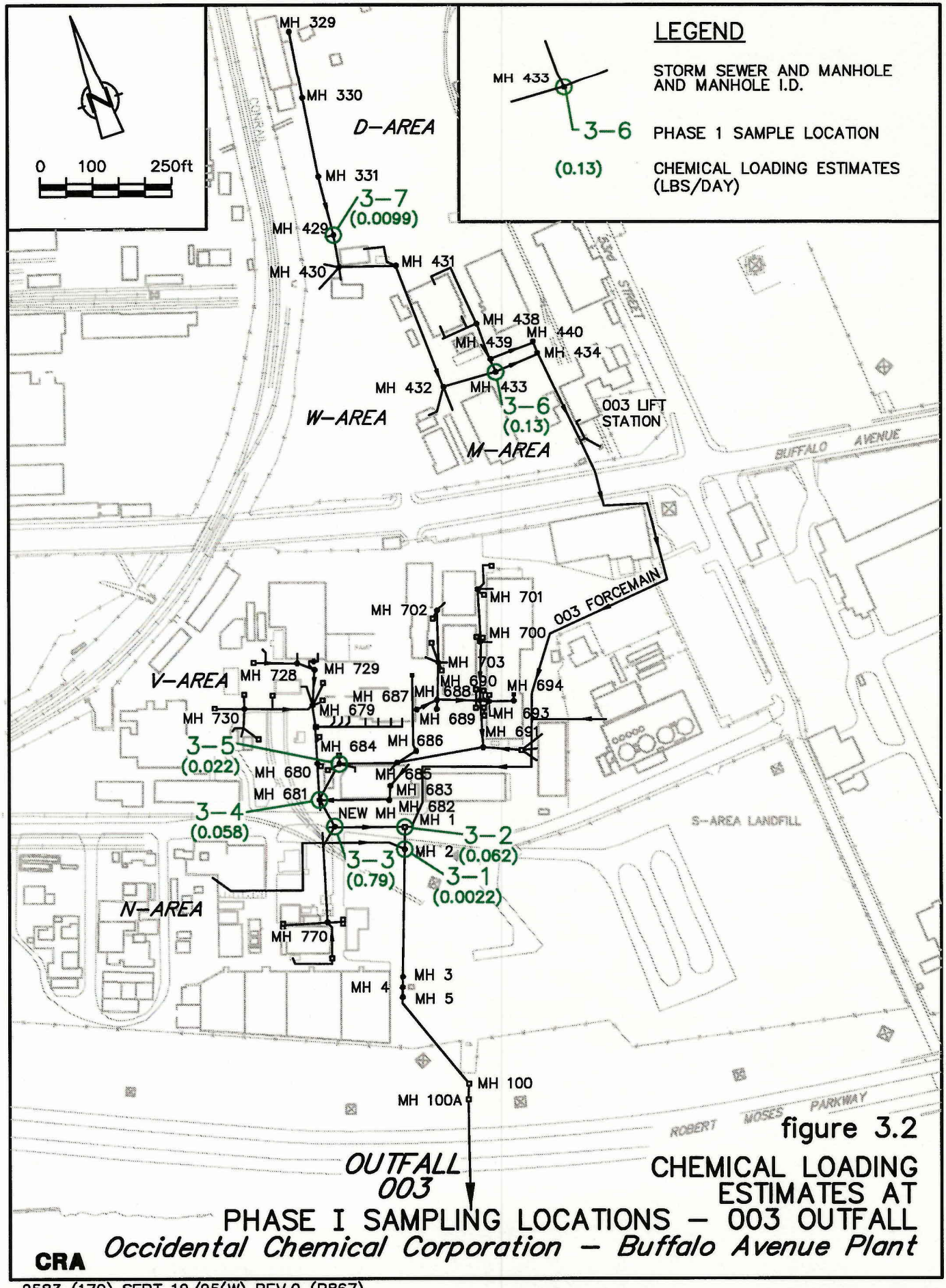

figure 3.2

CHEMICAL LOADING ESTIMATES AT PHASE I SAMPLING LOCATIONS – 003 OUTFALL

Occidental Chemical Corporation – Buffalo Avenue Plant

CRA

2583 (170) SEPT 19/95(W) REV.0 (P867)

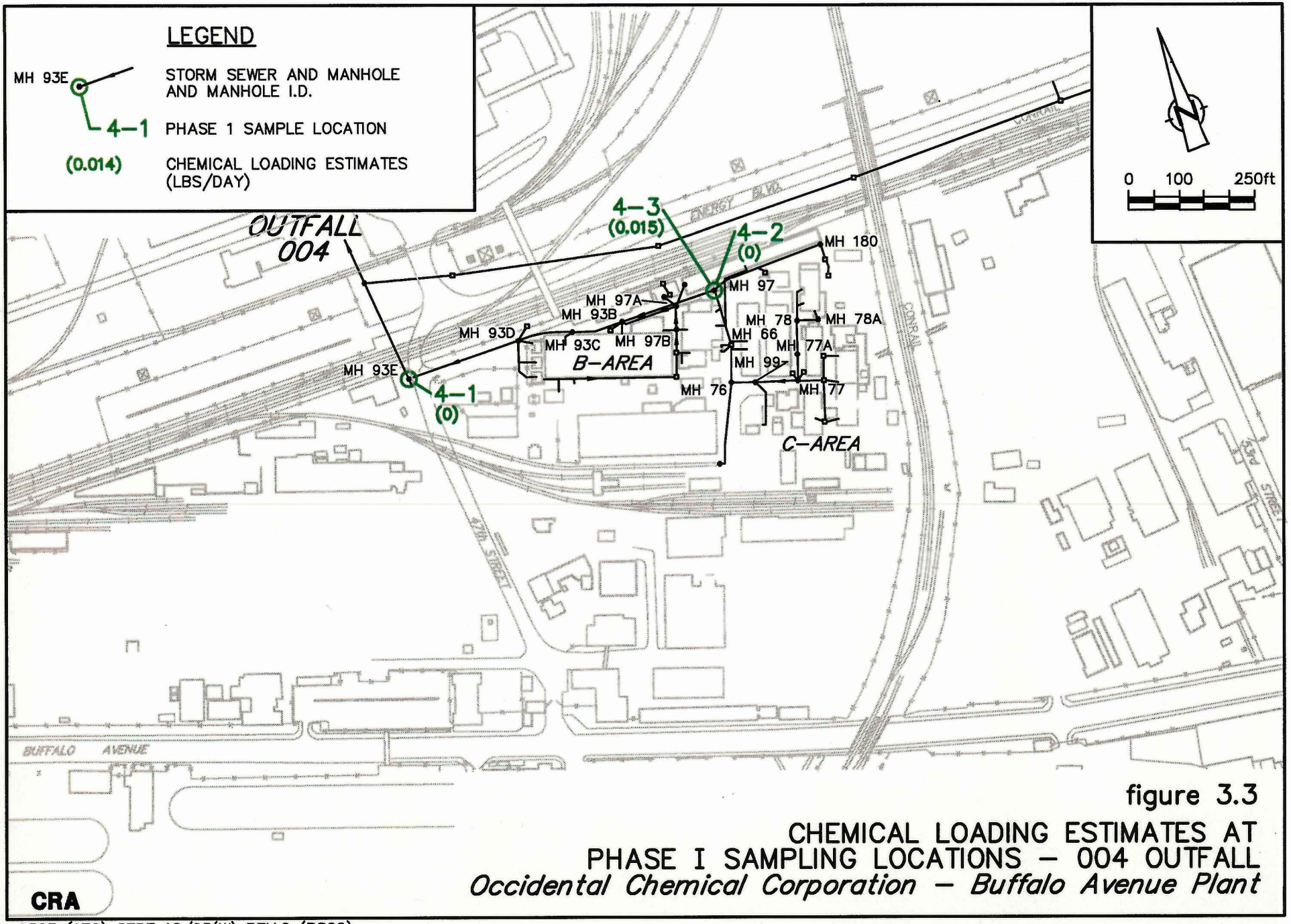

figure 3.3

CHEMICAL LOADING ESTIMATES AT PHASE I SAMPLING LOCATIONS – 004 OUTFALL

Occidental Chemical Corporation – Buffalo Avenue Plant

CRA

2583 (170) SEPT 18/95(W) REV.0 (P866)

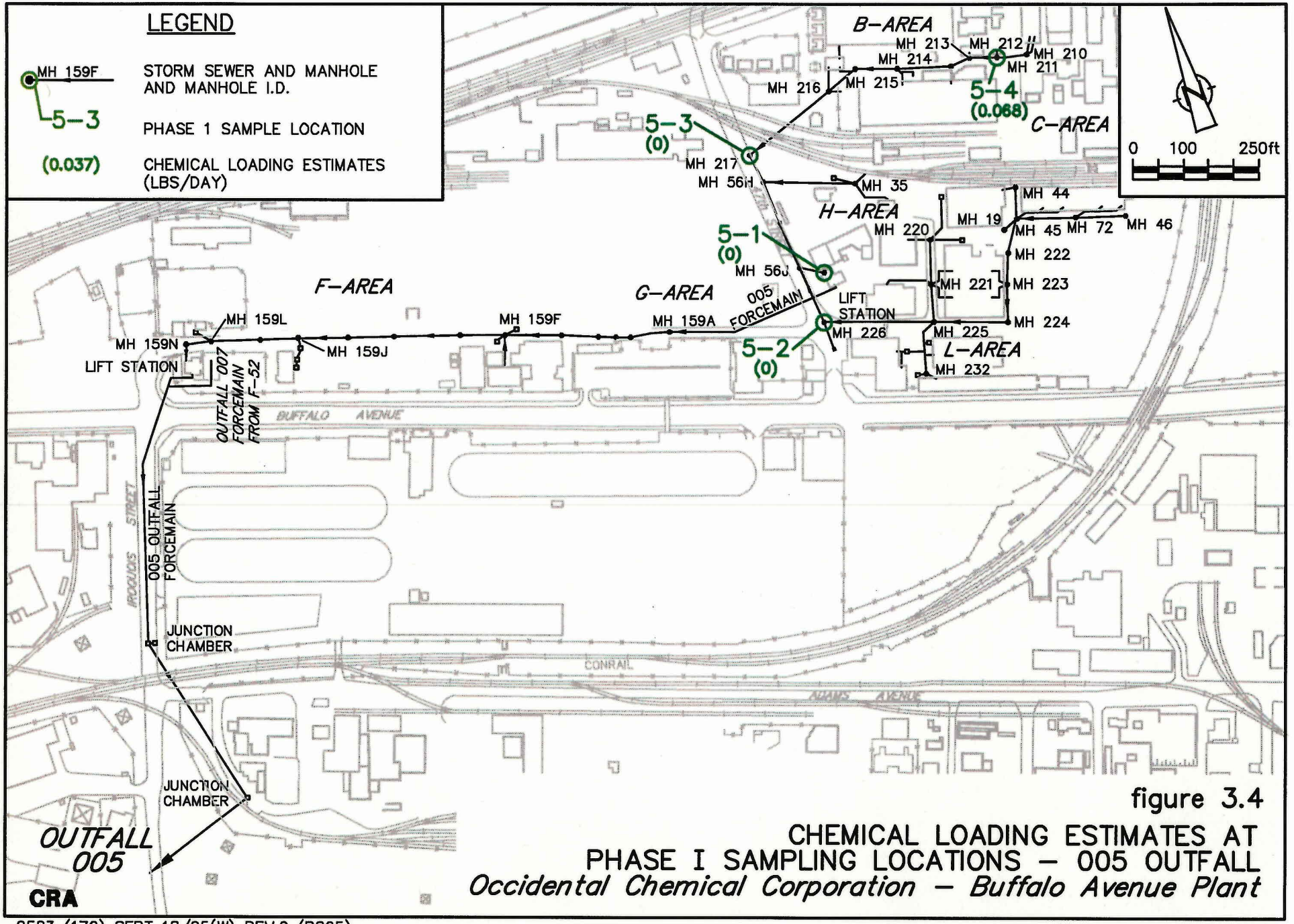

figure 3.4

CHEMICAL LOADING ESTIMATES AT PHASE I SAMPLING LOCATIONS – 005 OUTFALL

Occidental Chemical Corporation – Buffalo Avenue Plant

2583 (170) SEPT 18/95(W) REV.0 (P865)

TABLE 2.1

PHASE I - OUTFALL SAMPLE LOCATION SUMMARY
OCCIDENTAL CHEMICAL CORPORATION
BUFFALO AVENUE PLANT

Outfall	*OxyChem Manhole Designation* (1)	*Phase I Sample Designation*	*Sample Collection Point Description*
001	MH 585	1-1	north inlet
	MH 518	1-2	center of manhole
003	MH 2	3-1	west inlet
	MH 1	3-2	west inlet
	NEW MH	3-3	east outlet
	MH 681	3-4	center of manhole
	MH 684	3-5	south outlet
	MH 433	3-6	west inlet
	MH 429	3-7	center of manhole
004	MH 93E	4-1	north outlet
	MH 97	4-2	northeast inlet
	MH 97	4-3	south inlet
005	LIFT STATION H-20	5-1	H-20
	MH 226	5-2	north outlet
	MH 217	5-3	east inlet
	MH 211	5-4	west outlet

(1) Manholes typically listed in order from most downstream sections to upstream sections.

TABLE 3.1

OUTFALL SEWER INVESTIGATION PARAMETER LIST
OCCIDENTAL CHEMICAL CORPORATION
BUFFALO AVENUE PLANT

Analytes	*Units*	*Method Detection Level*	*Outfall 001*	*Outfall 003*	*Outfall 004*	*Outfall 005*
Mercury	µg/L	0.4	x			
Toluene	µg/L	1	x	x	x	x
2-Chlorotoluene	µg/L	1	x	x	x	x
4-Chlorotoluene	µg/L	1	x	x	x	x
2,4/2,5-Dichlorotoluene	µg/L	1	x	x	x	x
2,6-Dichlorotoluene	µg/L	1	x	x	x	x
2,3/3,4-Dichlorotoluene	µg/L	1	x	x	x	x
Benzene	µg/L	1			x	x
Chlorobenzene	µg/L	1	x	x	x	x
1,2-Dichlorobenzene	µg/L	1	x	x	x	x
1,3-Dichlorobenzene	µg/L	1	x	x	x	x
1,4-Dichlorobenzene	µg/L	1	x	x	x	x
1,2,3-Trichlorobenzene	µg/L	1	x	x	x	x
1,2,4-Trichlorobenzene	µg/L	1	x	x	x	x
1,2,3,4-Tetrachlorobenzene	µg/L	1	x	x	x	x
1,2,4,5-Tetrachlorobenzene	µg/L	1	x	x	x	x
Trichloroethylene	µg/L	1	x	x		
Tetrachloroethylene	µg/L	1	x	x	x	
2-Chlorobenzotrifluoride	µg/L	1		x		
4-Chlorobenzotrifluoride	µg/L	1		x		
2,4-Dichlorobenzotrifluoride	µg/L	1		x		
3,4-Dichlorobenzotriflouride	µg/L	1		x		
Hexachlorocyclopentadiene	µg/L	1		x		
Aroclor - 1016	µg/L					x
Aroclor - 1221	µg/L					x
Aroclor - 1232	µg/L					x
Aroclor - 1242	µg/L					x
Aroclor - 1248	µg/L					x
Aroclor - 1254	µg/L					x
Aroclor - 1260	µg/L					x

TABLE 3.2

OUTFALL 001 ANALYTICAL RESULTS
OCCIDENTAL CHEMICAL CORPORATION
BUFFALO AVENUE PLANT

Location Identification	*1-1*	*1-2*	*1-3 (Dup. of 1-1)*
Sample Date	*7/12/95*	*7/12/95*	*7/12/95*
Manhole Designation	*MH585*	*MH518*	*MH585*
Parameter (µg/L)			
Toluene	ND1	ND1	ND1
Chlorobenzene	ND1	ND1	ND1
2-Chlorotoluene	32	1	33
4-Chlorotoluene	11	ND1	11
1,3-Dichlorobenzene	ND1	3	ND1
1,4-Dichlorobenzene	ND1	3	ND1
1,2-Dichlorobenzene	ND1	ND1	ND1
2,5/2,4-Dichlorotoluene	12	ND1	12
2,6-Dichlorotoluene	2	ND1	2
2,3/3,4-Dichlorotoluene	5	ND1	5
Trichloroethylene	59 J	64	83 J
Tetrachloroethylene	44	49	54
1,2,4-Trichlorobenzene	ND1	2	ND1
1,2,3-Trichlorobenzene	ND1	ND1	ND1
1,2,4,5-Tetrachlorobenzene	ND1	ND1	ND1
1,2,3,4-Tetrachlorobenzene	ND1	ND1	ND1
Mercury	0.75	4.4	0.65

Notes:

1) ND x - Not detected at associated value.
J - Associated value is estimated.

TABLE 3.3

OUTFALL 001 CHEMICAL LOADINGS
OCCIDENTAL CHEMICAL CORPORATION
BUFFALO AVENUE PLANT

Location Identification	*1-1* (1)		*1-2*	
Manhole Designation	*MH585*		*MH518*	
Flow (gpd)	31,000		17,000	
Parameter	***µg/L***	***lbs/d***	***µg/L***	***lbs/d***
2-Chlorotoluene	32	0.0083	1	0.00014
4-Chlorotoluene	11	0.0028	ND1	--
1,3-Dichlorobenzene	ND1	--	3	0.00043
1,4-Dichlorobenzene	ND1	--	3	0.00043
2,5/2,4-Dichlorotoluene	12	0.0031	ND1	--
2.6-Dichlorotoluene	2	0.00052	ND1	--
2,3/3,4-Dichlorotoluene	5	0.0013	ND1	--
Trichloroethylene	71 J	0.018	64	0.0091
Tetrachloroethylene	49	0.013	49	0.0069
1,2,4-Trichlorobenzene	ND1	--	2	0.00028
Mercury	0.7	0.00018	4.4	0.00062
Location Totals		**0.047**		**0.018**
Total Leaving the Plant		**0.047**		

Notes:
1) Chemical loading is based on average of samples 1-1 and 1-3 (duplicate sample).
J - Associated value is estimated.

TABLE 3.4

OUTFALL 003 ANALYTICAL RESULTS
OCCIDENTAL CHEMICAL CORPORATION
BUFFALO AVENUE PLANT

Location Identification	*3-1*	*3-2*	*3-3*	*3-4*	*3-5*	*3-6*	*3-7*
Sample Date	*7/27/95*	*8/1/95*	*7/27/95*	*7/27/95*	*7/27/95*	*7/27/95*	*7/27/95*
Manhole Designation	*MH2*	*MH1*	*NEW MH*	*MH681*	*MH684*	*MH433*	*MH429*
Parameter (µg/L)							
Toluene	ND 1	ND 1	ND 1	ND 1	ND 1	ND 1	5
Chlorobenzene	ND 1	ND 1	ND 1	ND 1	ND 1	ND 1	ND 1
2-Chlorotoluene	2 J	14	ND 1	ND 1	ND 1	ND 1	21 J
4-Chlorotoluene	1	7	ND 1	ND 1	ND 1	ND 1	ND 1
1,3-Dichlorobenzene	ND 1	ND 1	ND 1	ND 1	ND 1	ND 1	2
1,4-Dichlorobenzene	ND 1	ND 1	ND 1	ND 1	ND 1	ND 1	4
1,2-Dichlorobenzene	ND 1	ND 1	ND 1	ND 1	ND 1	ND 1	ND 1
2,5/2,4-Dichlorotoluene	ND 1	ND 1	7	ND 1	ND 1	ND 1	87
2,6-Dichlorotoluene	ND 1	ND 1	ND 1	ND 1	ND 1	ND 1	3
2,3/3,4-Dichlorotoluene	ND 1	ND 1	2	ND 1	ND 1	ND 1	19
Trichloroethylene	1	2	2	3	2	2	33
Tetrachloroethylene	ND 1	ND 1	ND 1	ND 1	ND 1	2	28
4-Chlorobenzotrifluoride	24	20	290	210	140	ND 1	31
2-Chlorobenzotrifluoride	ND 1	ND 1	ND 1	ND 1	ND 1	ND 1	6
3,4-Dichlorobenzotrifuoride	ND 1	ND 1	6	3	2	ND 1	ND 1
2,4-Dichlorobenzotrifluoride	ND 1	ND 1	ND 1	ND 1	ND 1	ND 1	ND 1
1,2,4-Trichlorobenzene	ND 1	ND 1	ND 1	ND 1	ND 1	ND 1	24
1,2,3-Trichlorobenzene	ND 1	ND 1	ND 1	ND 1	ND 1	ND 1	2
1,2,4,5-Tetrachlorobenzene	ND 1	ND 1	ND 1	ND 1	ND 1	ND 1	5
1,2,3,4-Tetrachlorobenzene	ND 1	ND 1	2	ND 1	ND 1	ND 1	2
Hexachlorocyclopentadiene	1	2	2	ND 1	ND 1	1	32

Notes:
1) ND x - Not detected at associated value.
J - Associated value is estimated.

TABLE 3.5

OUTFALL 003 CHEMICAL LOADINGS
OCCIDENTAL CHEMICAL CORPORATION
BUFFALO AVENUE PLANT

Location Identification	3-1		3-2		3-3		3-4		3-5		3-6		3-7	
Manhole Designation	*MH2*		*MH1*		*NEW MH*		*MH681*		*MH684*		*MH433*		*MH429*	
Flow (gpd)	10,000		310,000		310,000		32,000		18,000		3,000,000		6,500	
Parameter	*µg/L*	*lbs/d*	*µg/L*	*lbs/d*	*µg/L*	*lbs/d*	*µg/L*	*lbs/d*	*µg/L*	*lbs/d*	*µg/L*	*lbs/d*	*µg/L*	*lbs/d*
Toluene	ND 1	–	ND 1	–	ND 1	–	ND 1	–	ND 1	–	ND 1	–	5	0.00027
2-Chlorotoluene	2 J	0.00017	14	0.036	ND 1	–	ND 1	–	ND 1	–	ND 1	–	21 J	0.0011
4-Chlorotoluene	1	0.00008	7	0.018	ND 1	–	ND 1	–	ND 1	–	ND 1	–	ND 1	–
1,3-Dichlorobenzene	ND 1	–	ND 1	–	ND 1	–	ND 1	–	ND 1	–	ND 1	–	2	0.00011
1,4-Dichlorobenzene	ND 1	–	ND 1	–	ND 1	–	ND 1	–	ND 1	–	ND 1	–	4	0.00022
2,5/2,4-Dichlorotoluene	ND 1	–	ND 1	–	7	0.018	ND 1	–	ND 1	–	ND 1	–	87	0.0047
2.6-Dichlorotoluene	ND 1	–	ND 1	–	ND 1	–	ND 1	–	ND 1	–	ND 1	–	3	0.00016
2,3/3,4-Dichlorotoluene	ND 1	–	ND 1	–	2	0.0052	ND 1	–	ND 1	–	ND 1	–	19	0.0010
Trichloroethylene	1	0.00008	2	0.0052	2	0.0052	3	0.00080	2	0.00030	2	0.050	33	0.0018
Tetrachloroethylene	ND 1	–	ND 1	–	ND 1	–	ND 1	–	ND 1	–	2	0.050	28	0.0015
4-Chlorobenzotrifluoride	24	0.00200	20	0.052	290	0.75	210	0.056	140	0.021	ND 1	–	31	0.0017
2-Chlorobenzotrifluoride	ND 1	–	ND 1	–	ND 1	–	ND 1	–	ND 1	–	ND 1	–	6	0.00033
3,4-Dichlorobenzotrifuoride	ND 1	–	ND 1	–	6	0.016	3	0.00080	2	0.00030	ND 1	–	ND 1	–
1,2,4-Trichlorobenzene	ND 1	–	ND 1	–	ND 1	–	ND 1	–	ND 1	–	ND 1	–	24	0.0013
1,2,3-Trichlorobenzene	ND 1	–	ND 1	–	ND 1	–	ND 1	–	ND 1	–	ND 1	–	2	0.00011
1,2,4,5-Tetrachlorobenzene	ND 1	–	ND 1	–	ND 1	–	ND 1	–	ND 1	–	ND 1	–	5	0.00027
1,2,3,4-Tetrachlorobenzene	ND 1	–	ND 1	–	2	0.0052	ND 1	–	ND 1	–	ND 1	–	2	0.00011
Hexachlorocyclopentadiene	1	0.00008	2	0.0052	2	0.0052	ND 1	–	ND 1	–	1	0.025	32	0.0017
Location Totals		**0.0022**		**0.062**		**0.79**		**0.058**		**0.022**		**0.13**		**0.0099**

Total Leaving the Plant[(1)] **0.19**

Note:

(1) The total loading leaving the Plant is the sum of the loadings at locatins 3-1, 3-2 and 3-6.

J Associated value is estimated.

TABLE 3.6

OUTFALL 004 ANALYTICAL RESULTS
OCCIDENTAL CHEMICAL CORPORATION
BUFFALO AVENUE PLANT

Location Identification	*4-1*	*4-2*	*4-3*
Sample Date	*8/1/95*	*8/1/95*	*8/1/95*
Manhole Designation	*MH93E*	*MH97*	*MH97*
Parameter (µg/L)			
Toluene	ND 1	ND 1	ND 1
Chlorobenzene	ND 1	ND 1	ND 1
2-Chlorotoluene	ND 1	ND 1	1
4-Chlorotoluene	ND 1	ND 1	ND 1
1,3-Dichlorobenzene	ND 1	ND 1	ND 1
1,4-Dichlorobenzene	ND 1	ND 1	ND 1
1,2-Dichlorobenzene	ND 1	ND 1	ND 1
2,5/2,4-Dichlorotoluene	ND 1	ND 1	ND 1
2.6-Dichlorotoluene	ND 1	ND 1	ND 1
2,3/3,4-Dichlorotoluene	ND 1	ND 1	ND 1
Tetrachloroethylene	ND 1	ND 1	ND 1
1,2,4-Trichlorobenzene	ND 1	ND 1	ND 1
1,2,3-Trichlorobenzene	ND 1	ND 1	ND 1
1,2,4,5-Tetrachlorobenzene	ND 1	ND 1	ND 1
1,2,3,4-Tetrachlorobenzene	ND 1	ND 1	ND 1
Benzene [2]	ND 1	ND 1	ND 1

Notes:

1) ND x - Not detected at associated value.
2) Sampled using grab sample techniques at 0, 12, and 24 hours. Lab composited and analysed after holding time expired.

TABLE 3.7

OUTFALL 004 CHEMICAL LOADINGS
OCCIDENTAL CHEMICAL CORPORATION
BUFFALO AVENUE PLANT

Location Identification	*4-1*		*4-2*		*4-3*	
Manhole Designation	*MH93E*		*MH97*		*MH97*	
Flow (gpd)	5,900,000		1,100,000		1,800,000	
Parameter	*µg/L*	*lbs/d*	*µg/L*	*lbs/d*	*µg/L*	*lbs/d*
2-Chlorotoluene	ND 1		ND 1		1	0.015
Location Totals		0		0		0.015
Total Leaving the Plant		**0**				

TABLE 3.8

OUTFALL 005 ANALYTICAL RESULTS
OCCIDENTAL CHEMICAL CORPORATION
BUFFALO AVENUE PLANT

Location Identification	*5-1*	*5-2*	*5-3*	*5-4*
Sample Date	*7/13/95*	*7/13/95*	*7/13/95*	*7/13/95*
Manhole Designation	*H-20*	*MH226*	*MH217*	*MH211*
Parameter (µg/L)				
Toluene	ND 1	ND 1	ND 1	ND 1
Chlorobenzene	ND 1	ND 1	ND 1	ND 1
2-Chlorotoluene	ND 1	ND 1	ND 1	1
4-Chlorotoluene	ND 1	ND 1	ND 1	ND 1
1,3-Dichlorobenzene	ND 1	ND 1	ND 1	ND 1
1,4-Dichlorobenzene	ND 1	ND 1	ND 1	ND 1
1,2-Dichlorobenzene	ND 1	ND 1	ND 1	ND 1
2,5/2,4-Dichlorotoluene	ND 1	ND 1	ND 1	ND 1
2.6-Dichlorotoluene	ND 1	ND 1	ND 1	ND 1
2,3/3,4-Dichlorotoluene	ND 1	ND 1	ND 1	ND 1
1,2,4-Trichlorobenzene	ND 1	ND 1	ND 1	ND 1
1,2,3-Trichlorobenzene	ND 1	ND 1	ND 1	ND 1
1,2,4,5-Tetrachlorobenzene	ND 1	ND 1	ND 1	ND 1
1,2,3,4-Tetrachlorobenzene	ND 1	ND 1	ND 1	ND 1
Benzene [2]	ND 1	ND 1	ND 1	ND 1
Aroclor-1016	ND 0.05	ND 0.05	ND 0.05	ND 0.05
Aroclor-1221	ND 0.05	ND 0.05	ND 0.05	ND 0.05
Aroclor-1232	ND 0.05	ND 0.05	ND 0.05	ND 0.05
Aroclor-1242	ND 0.05	ND 0.05	ND 0.05	ND 0.05
Aroclor-1248	ND 0.05	ND 0.05	ND 0.05	ND 0.05
Aroclor-1254	ND 0.05	ND 0.05	ND 0.05	ND 0.05
Aroclor-1260	ND 0.05	ND 0.05	ND 0.05	ND 0.05

Notes:

1) ND x - Not detected at associated value.
2) Sampled using grab sample techniques at 0, 12, and 24 hours. Samples were composited by the lab.

TABLE 3.9

OUTFALL 005 CHEMICAL LOADINGS
OCCIDENTAL CHEMICAL CORPORATION
BUFFALO AVENUE PLANT

Location Identification	*5-1*		*5-2*		*5-3*		*5-4*	
Manhole Designation	*H-20*		*MH226*		*MH217*		*MH211*	
Flow (gpd)	13,000,000		150,000		13,000,000		8,200,000	
Parameter	*µg/L*	*lbs/d*	*µg/L*	*lbs/d*	*µg/L*	*lbs/d*	*µg/L*	*lbs/d*
2-Chlorotoluene	ND 1		ND 1		ND 1		1	0.068
Location Totals		0		0		0		0.068
Outfall Total		**0**						

TABLE 4.1

RANKING OF SEWER SEGMENT LOADINGS
OCCIDENTAL CHEMICAL CORPORATION
BUFFALO AVENUE PLANT

RANK	LOCATION	LOADING		SEWER SEGMENT
		lbs/d	*lbs/yr*	
1	3-3	0.79	290	MH 770 or MH 681 to NEW MH
2	3-6	0.13	47	M- AREA
3	5-4	0.068	25	C-39 to M211
4	3-2	0.062	23	NEW MH to MH 1
5	3-4	0.058	21	NW V-AREA & MH 684 to MH 681
6	1-1	0.047	17	MH 518 to MH 585
7	3-5	0.022	8.0	NE V-AREA to MH 684
8	1-2	0.018	6.6	WEST T-AREA & U-90
9	4-3	0.015	5.5	B-25 to MH 76 to MH 66 to MH 97
10	3-7	0.0099	3.6	NORTHERN M-AREA
11	3-1	0.0022	0.80	N-AERA NEUTRALIZATION
12	4-1	0	0	MH 97 to MH 93E
13	4-2	0	0	NORTHERN C-AREA
14	5-1	0	0	MH 56J & MH 226 to LIFT STATION
15	5-2	0	0	H & L-AREAS
16	5-3	0	0	MH 211 to MH 217

RANK	OUTFALL	LOADING (1)		PERCENT OF TOTAL
		lbs/d	*lbs/yr*	
1	003	0.19	70	80%
2	001	0.047	17	20%
3	004	0	0	0%
4	005	0	0	0%
	TOTAL	**0.237**	**87**	**100%**

Note:

(1) The total outfall loading is the sum of the loading at the most downstream location(s).

TABLE 4.2

001 MANHOLES TO BE INSPECTED -PHASE II INVESTIGATION
OCCIDENTAL CHEMICAL CORPORATION
BUFFALO AVENUE PLANT

OxyChem Manhole Designation [1]
MH 584
MH 585
MH 520
MH 9
MH 518
MH 563
MH 564
MH 565
MH 566
MH 567

Note:
(1) Manholes typically listed in order from most downstream sections to upstream sections.

TABLE 4.3

003 MANHOLES TO BE INSPECTED -PHASE II INVESTIGATION
OCCIDENTAL CHEMICAL CORPORATION
BUFFALO AVENUE PLANT

N & V-AREA OxyChem Manhole Designation (1)	*M-AREA OxyChem Manhole Designation*
MH 1	MH 434
MH 2	MH 440
NEW MH	MH 439
MH 770	MH 438
MH 681	MH 433
MH 680	MH 432 (2)
MH 679	MH 431
MH 729	
MH 728	
MH 684	
MH 685	
MH 686	
MH 687	
MH 688	
MH 689	
MH 690	
MH 691	
MH 693	
MH 694	
MH700	
MH 701	
MH702	
MH703	
MH704	
MH705	

Note:

(1) Manholes typically listed in order from most downstream sections to upstream sections

(2) Take grab samples from process flows entering MH 432

TABLE 4.4

004 MANHOLES TO BE INSPECTED -PHASE II INVESTIGATION
OCCIDENTAL CHEMICAL CORPORATION
BUFFALO AVENUE PLANT

OxyChem Manhole Designation [1]
MH 97
MH 66
MH 76
MH 99
MH 77
MH 98A
MH 98
MH 98 B
MH 77A
MH 78
MH 78A
MH 79

Note:

(1) Manholes typically listed in order from most downstream sections to upstream sections.

TABLE 4.5

005 MANHOLES TO BE INSPECTED -PHASE II INVESTIGATION
OCCIDENTAL CHEMICAL CORPORATION
BUFFALO AVENUE PLANT

OxyChem Manhole Designation [1]
MH 211
MH 210

Notes:

(1) Manholes typically listed in order from most downstream sections to upstream sections.

TABLE A-1

001 OUTFALL FLOWS
OCCIDENTAL CHEMICAL CORPORATION
BUFFALO AVENUE PLANT

Sample ID	**1-1**		**1-2**	
Sample Location	***MH 585***		***MH 518***	
Sewer Dia. (in)	36		24	
Time (hrs)	***Velocity (fps)***	***Depth (ft)***	***Velocity (fps)***	***Depth (ft)***
0	Surcharged Manhole		2.2	0.04
4			2.5	0.04
8				
12				
16			0.8	0.04
20			0.82	0.04
24			2.69	0.04
			1.80	0.04
Measured Flow (cfs)	–		**0.03**	
Measured Flow (gpd)	–		**17000**	
Actual Flow (gpd)	**31000**			
Actual Flow (cfs)	**0.05**			

TABLE A-2

003 OUTFALL FLOWS
OCCIDENTAL CHEMICAL CORPORATION
BUFFALO AVENUE PLANT

Location ID	3-1 [1]		3-2		3-3		3-4 [2]		3-5		3-6		3-7	
Sample Location	*MH 2*		*MH 1*		*NEW MH*		*MH 681*		*MH684*		*MH 433*		*MH 429*	
Sewer Dia. (in)	Forcemain		36		36				21		24		24	
Time (hrs)	*Velocity (fps)*	*Depth (ft)*	*Velocity (fps)*	*Depth (ft)*	*Velocity (fps)*	*Depth (ft)*	*Velocity (fps)*	*Depth (ft)*	*Velocity (fps)*	*Depth (ft)*	*Velocity (fps)*	*Depth (ft)*	*Velocity (fps)*	*Depth (ft)*
0	NM	NM	2.11	0.94	3.12	1.23	Surcharged Manhole		0	1.75	4.99	1.23	0.45	0.14
4	NM	NM	2.3	1.2	1.41	1.22			0	1.75	4.71	1.21	0.1	0.12
8	NM	NM	2	1.24	0.65	1.1			0	1.75	4.92	1.12	0	0.1
12	NM	NM	2.55	1.1	0.44	1.12			0.06	1.75	3.04	1.18	0.05	0.1
16	NM	NM	3.47	1.9	0.39	1.25			0	1.75	3.59	1.1	0.05	0.1
20	NM	NM	1.96	1.2	0.66	1.1			0.01	1.75	3.11	1.25	0.24	0.1
24	NM	NM												
			2.40	1.26	1.11	1.17			0.01	1.75	4.06	1.18	0.15	0.11
Measured Flow (cfs)	**NM**		**6.78**		**2.84**		**–**		**0.03**		**7.84**		**0.01**	
Measured Flow (gpd)	**NM**		**4,382,167**		**1,833,698**		**–**		**18,135**		**5,069,624**		**6,485**	
Estimated Flow (gpd)	**10,000**		**310,000**		**310,000**		**32,000**		**18,000**		**3,000,000**		**6,500**	
Estimated Flow (cfs)	**0.015**		**0.48**		**0.48**		**0.050**		**0.028**		**4.6**		**0.010**	

Note:

1) Location 3-1 was located in a process discharge line which discharged from a sump over a short period of time and as a result no flows were obtained.

2) The manhole was surcharged due to the raised outlet to the NEW MH and there was very minimal flow entering the manhole.

TABLE A-3

004 OUTFALL FLOWS
OCCIDENTAL CHEMICAL CORPORATION
BUFFALO AVENUE PLANT

Sample ID	**4-1**	**4-2**		**4-3**	
Sample Location	***MH 93E***	***MH 97***		***MH 97***	
Sewer Dia. (in)	30	18		24	
Time (hrs)	***Avg. Flow (gpm)***	***Velocity (fps)***	***Depth (ft)***	***Velocity (fps)***	***Depth (ft)***
0		3.31	0.45	2.03	0.96
4	4200	3.44	0.44	1.68	0.94
8	4300	3.50	0.40	1.83	0.95
12	4100	3.54	0.40	3.02	0.85
16	4000	3.45	0.45	1.85	0.85
20	4100	4.22	0.48	1.97	0.9
24	4000	4.40	0.50	1.61	0.92
	4100	3.69	0.45	2.00	0.91
Measured Flow (cfs)	**9.14**	**1.63**		**2.78**	
Measured Flow (gpd)	**5,900,000**	**1,100,000**		**1,800,000**	

TABLE A-4

005 OUTFALL FLOWS
OCCIDENTAL CHEMICAL CORPORATION
BUFFALO AVENUE PLANT

Sample ID	**5-1**		**5-2**		**5-3**		**5-4**	
Sample Location	***H-20 Lift Station***		***MH 226***		***MH 217***		***MH 211***	
Sewer Dia. (in)	36		24		36		24	
Time (hrs)	***Velocity (fps)***	***Depth (ft)***	***Velocity (fps)***	***Depth (ft)***	***Velocity (fps)***	***Depth (ft)***	***Velocity (fps)***	***Depth (ft)***
0	1.14	3	0	2	3.58	2.46	5.92	1.4
4	1.44	3	0	2	2.89	2.8	5.49	1.58
8	0.96	3	0	2	2.51	2.5	3.81	1.5
12	0.91	3	0	2	3.61	2.5	3.95	1.5
16	1	3	0	2	3.01	2.5	3.83	1.5
20	1.64	3	0.2	2	3.28	2.7	5.29	1.75
24	2.28	3	0.32	2	2.74	2.75	5.59	1.7
	1.34	3.00	0.07	2.00	3.09	2.60	4.84	1.56
Measured Flow (cfs) (1)	**9.46**		**0.23**		**20.11**		**12.74**	
Measured Flow (gpd)	**6,100,000**		**150,000**		**13,000,000**		**8,200,000**	
Estimated Flow (cfs)	**20.34**		**0.23**		**20.11**		**12.74**	
Estimated Flow (gpd)	**13,000,000**		**150,000**		**13,000,000**		**8,200,000**	
Total 005 Flow (gpd)	**14,760,000** (2)							

Note:

1) The flow at 5-1 must be equal to or greater than the combined flow of 5-2 & 5-3. The measured flow at 5-1 was low because the velocity was not measured in the outlet of the 36" sewer, but rather after the flow entered the wetwell. As a result, the flow dispersed and the velocity was reduced by the time the velocity was measured producing a lower calculated flow.

2) The total flow from in the 005 Outfall is greater than 13,000,000 gallons/day as there is flow entering the sewer after the H-20 Lift Station, before it gets to the K-28 monitoring station.

APPENDIX B

DATA QUALITY ASSESSMENT

DATA QUALITY ASSESSMENT
BUFFALO AVENUE PLANT - OUTFALL SEWER INVESTIGATION
OCCIDENTAL CHEMICAL CORPORATION

INTRODUCTION

The following details an assessment of analytical results for water samples collected in July and August 1995 from Outfall sewer lines 001, 002, 003, 004, and 005 at the Niagara Plant. The samples were submitted for microextractables, benzene, mercury and PCBs and are as follows:

Parameter	*Investigative Samples*	*Field Duplicates*	*Rinse Blanks*	*MS/MSD*	*Total*
Microextractables	16	1	1	1/1	20
Benzene	7	-	-	1/1	9
Mercury	2	1	-	-	3
PCBs	4	-	-	1/1	6

Notes:
MS/MSD Matrix Spike/Matrix Spike Duplicate
PCBs Polychlorinated Biphenyls

Investigative samples were analyzed by the following methods:

Parameter	*Methodology*
Microextractables	(1)
Benzene	EPA 602 (2)
Mercury	EPA 245.1 (3)
PCBs	EPA 608 (2)

Notes:
(1) "Compilation of Microextraction Method", Occidental Chemical Report, August 1989.
(2) "Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater", EPA-600/4-82-057, July 1982.
(3) "Methods for Chemical Analysis of Waters and Wastes", EPA-600/4-79-020, June 1982.
PCBs Polychlorinated Biphenyls

For sample identification and location, a sample key is presented in Table B-1. A summary of analytical results is presented in Table B-2. The data quality was assessed based on the methods above and the guidance documents, "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review", USEPA 540/R-94-012, February 1994 and "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review", USEPA 540/R-94-013, February 1994. The assessment was based on final sample results, laboratory blank results, matrix spike/matrix spike duplicate results, blank spike results, surrogates, and field duplicates.

QUALITY ASSURANCE/QUALITY CONTROL ASSESSMENT

Holding Times and Sample Preservation

All of the investigative samples were properly preserved during transport and storage.

Samples were extracted and/or analyzed within the method specified holding times with the exception of samples 4-1, 4-2, and 4-3, which were analyzed three days after the holding time criteria for benzene analysis. All results were qualified as estimated due to a potential low bias.

Method Blank Analyses

Method blanks were extracted and/or analyzed with each batch of samples and all analytes of interest were non-detect.

Surrogate Recoveries - Benzene and PCBs

Surrogate compounds were added to all samples prior to extraction and/or analysis of benzene and PCBs. Surrogate recoveries were within acceptable control limits for all samples.

Matrix Spike/Matrix Spike Duplicate (MS/MSD) and Blank Spike/Blank Spike Duplicate (BS/BSD) Analyses

MS/MSD or BS/BSD analyses were performed for all parameters of interest. All percent recoveries and relative percent differences (RPDs) were within the required control limits with the following exceptions:

i) A high RPD was reported in one of the microextractable MS/MSD analyses for 1,3-dichlorobenzene. All associated results were non-detect and would not have been impacted by the poor reproducibility.

ii) High recoveries were reported for 1,2-dichlorobenzene, 2-chlorotoluene, and 1,2,4-trichlorobenzene in some of the blank spike analyses for the microextractables. All associated positive data were qualified as estimated due to a potential high bias. Non-detect sample results would not have been affected.

Field QA/QC Results

Trip blanks were transported with samples submitted for benzene analysis. Volatile compounds of interest were not detected in any of the trip blanks.

A rinse blank was submitted for microextractables analysis. All compounds of interest were non-detect with the exception of toluene and 1,2,3,4-tetrachlorobenzene. Associated sample results less than five times the blank concentrations for these compounds were qualified as non-detect.

Sample 1-3 was collected as a "blind" field duplicate and analyzed for microextractables and mercury as noted in Table B-1. The data showed acceptable reproducibility outside of estimated regions of detection with the exception of trichloroethene. Due to the variability of this compound, associated sample results were qualified as estimated.

CONCLUSION

Sample results reported for this study were acceptable with the qualifications noted herein.

TABLE B-1

SAMPLE SUMMARY KEY
NIAGARA PLANT - OUTFALL SEWER INVESTIGATION
OCCIDENTAL CHEMICAL CORPORATION
JULY - AUGUST 1995

Sample ID	*Location*	*Date*	*Time*	*Analytes*	*Comments*
1-1	Outfall 001 - Manhole 585	07/12/95	0100	Microextractables, Mercury	
1-2	Outfall 001 - Manhole 518	07/12/95	0100	Microextractables, Mercury	
1-3	Outfall 001 - Manhole 585	07/12/95	0100	Microextractables, Mercury	Duplicate of 1-1
3-1	Outfall 003 - Manhole 2	07/27/95	1230	Microextractables	
3-2	Outfall 003 - Manhole 1	08/01/95	1400	Microextractables	
3-3	Outfall 003 - NEW MH	07/27/95	1230	Microextractables	
3-4	Outfall 003 - Manhole 681	07/27/95	1230	Microextractables	
3-5	Outfall 003 - Manhole 684	07/27/95	1230	Microextractables	
3-6	Outfall 003 - Manhole 430	07/27/95	1230	Microextractables	
3-7	Outfall 003 - Manhole 429	07/27/95	1230	Microextractables	
Rinse Blank	-	07/27/95	1230	Microextractables	Rinse Blank
4-1	Outfall 004 - Manhole 93E	08/01/95	1430	Microextractables, Benzene	
4-2	Outfall 004 - Manhole 97	08/01/95	1440	Microextractables, Benzene	
4-3	Outfall 004 - Manhole 97	08/01/95	1445	Microextractables, Benzene	
5-1	Outfall 005 - H-20 Lift Station	07/13/95	1100	Microextractables, Benzene, PCBs	MS/MSD (Benzene)
5-2	Outfall 005 - Manhole 226	07/13/95	1100	Microextractables, Benzene, PCBs	
5-3	Outfall 005 - Manhole 217	07/13/95	1100	Microextractables, Benzene, PCBs	MS/MSD (Microextractables)
5-4	Outfall 005 - Manhole 211	07/13/95	1100	Microextractables, Benzene, PCBs	MS/MSD (PCBs)

Notes:
MS/MSD Matrix Spike/Matrix Spike Duplicate

TABLE B-2

ANALYTICAL RESULTS SUMMARY
NIAGARA PLANT - OUTFALL SEWER INVESTIGATION
OCCIDENTAL CHEMICAL CORPORATION
JULY - AUGUST 1995

Sample ID:	*1-1*	*1-2*	*1-3* (*Duplicate of 1-1*)	*3-1*	*3-2*	*3-3*	*3-4*	*3-5*	*3-6*
Sample Date:	*07/12/95*	*07/12/95*	*07/12/95*	*07/27/95*	*08/01/95*	*07/27/95*	*07/27/95*	*07/27/95*	*07/27/95*
Parameter									
Microextractables (µg/L)									
Toluene	ND 1	ND 1	ND 1	ND 1	ND 1	ND 1	ND 1	ND 1	ND 1
Chlorobenzene	ND 1	ND 1	ND 1	ND 1	ND 1	ND 1	ND 1	ND 1	ND 1
2-Chlorotoluene	32	1	33	2J	14	ND 1	ND 1	ND 1	ND 1
4-Chlorotoluene	11	ND 1	11	1	7	ND 1	ND 1	ND 1	ND 1
1,3-Dichlorobenzene	ND 1	3	ND 1	ND 1	ND 1	ND 1	ND 1	ND 1	ND 1
1,4-Dichlorobenzene	ND 1	3	ND 1	ND 1	ND 1	ND 1	ND 1	ND 1	ND 1
1,2-Dichlorobenzene	ND 1	ND 1	ND 1	ND 1	ND 1	ND 1	ND 1	ND 1	ND 1
2,5/2,4-Dichlorotoluene	12	ND 1	12	ND 1	ND 1	7	ND 1	ND 1	ND 1
2,6-Dichlorotoluene	2	ND 1	2	ND 1	ND 1	ND 1	ND 1	ND 1	ND 1
2,3/3,4-Dichlorotoluene	5	ND 1	5	ND 1	ND 1	2	ND 1	ND 1	ND 1
Trichloroethylene	59J	64	83J	1	2	2	3	2	2
Tetrachloroethylene	44	49	54	ND 1	ND 1	ND 1	ND 1	ND 1	2
4-Chlorobenzotrifluoride	-	-	-	24	20	290	210	140	ND 1
2-Chlorobenzotrifluoride	-	-	-	ND 1	ND 1	ND 1	ND 1	ND 1	ND 1
3,4-Dichlorobenzotrifluoride	-	-	-	ND 1	ND 1	6	3	2	ND 1
2,4-Dichlorobenzotrifluoride	-	-	-	ND 1	ND 1	ND 1	ND 1	ND 1	ND 1
1,2,4-Trichlorobenzene	ND 1	2	ND 1	ND 1	ND 1	ND 1	ND 1	ND 1	ND 1
1,2,3-Trichlorobenzene	ND 1	ND 1	ND 1	ND 1	ND 1	ND 1	ND 1	ND 1	ND 1
1,2,4,5-Tetrachlorobenzene	ND 1	ND 1	ND 1	ND 1	ND 1	ND 1	ND 1	ND 1	ND 1
Hexachlorocyclopentadiene	-	-	-	1	2	2	ND 1	ND 1	1
1,2,3,4-Tetrachlorlobenzene	ND 1	ND 1	ND 1	ND 1	ND 1	ND 2	ND 1	ND 1	ND 1
Volatiles (µg/L)									
Benzene	-	-	-	-	-	-	-	-	-
PCBs (µg/L)									
Aroclor-1016	-	-	-	-	-	-	-	-	-
Aroclor-1221	-	-	-	-	-	-	-	-	-
Aroclor-1232	-	-	-	-	-	-	-	-	-
Aroclor-1242	-	-	-	-	-	-	-	-	-
Aroclor-1248	-	-	-	-	-	-	-	-	-
Aroclor-1254	-	-	-	-	-	-	-	-	-
Aroclor-1260	-	-	-	-	-	-	-	-	-
Metals (µg/L)									
Mercury	0.75	4.4	0.65	-	-	-	-	-	-

TABLE B-2

ANALYTICAL RESULTS SUMMARY
NIAGARA PLANT - OUTFALL SEWER INVESTIGATION
OCCIDENTAL CHEMICAL CORPORATION
JULY - AUGUST 1995

Sample ID:	*3-7*	*4-1*	*4-2*	*4-3*	*5-1*	*5-2*	*5-3*	*5-4*
Sample Date:	*07/27/95*	*08/01/95*	*08/01/95*	*08/01/95*	*07/13/95*	*07/13/95*	*07/13/95*	*07/13/95*
Parameter								
Microextractables (µg/L)								
Toluene	ND 5	ND 1	ND 1	ND 1	ND 1	ND 1	ND 1	ND 1
Chlorobenzene	ND 1	ND 1	ND 1	ND 1	ND 1	ND 1	ND 1	ND 1
2-Chlorotoluene	21J	ND 1	ND 1	1	ND 1	ND 1	ND 1	1
4-Chlorotoluene	ND 1	ND 1	ND 1	ND 1	ND 1	ND 1	ND 1	ND 1
1,3-Dichlorobenzene	2	ND 1	ND 1	ND 1	ND 1	ND 1	ND 1	ND 1
1,4-Dichlorobenzene	4	ND 1	ND 1	ND 1	ND 1	ND 1	ND 1	ND 1
1,2-Dichlorobenzene	ND 1	ND 1	ND 1	ND 1	ND 1	ND 1	ND 1	ND 1
2,5/2,4-Dichlorotoluene	87	ND 1	ND 1	ND 1	ND 1	ND 1	ND 1	ND 1
2,6-Dichlorotoluene	3	ND 1	ND 1	ND 1	ND 1	ND 1	ND 1	ND 1
2,3/3,4-Dichlorotoluene	19	ND 1	ND 1	ND 1	ND 1	ND 1	ND 1	ND 1
Trichloroethylene	33	-	-	-	-	-	-	-
Tetrachloroethylene	28	ND 1	ND 1	ND 1	-	-	-	-
4-Chlorobenzotrifluoride	31	-	-	-	-	-	-	-
2-Chlorobenzotrifluoride	6	-	-	-	-	-	-	-
3,4-Dichlorobenzotrifluoride	ND 1	-	-	-	-	-	-	-
2,4-Dichlorobenzotrifluoride	ND 1	-	-	-	-	-	-	-
1,2,4-Trichlorobenzene	24	ND 1	ND 1	ND 1	ND 1	ND 1	ND 1	ND 1
1,2,3-Trichlorobenzene	2	ND 1	ND 1	ND 1	ND 1	ND 1	ND 1	ND 1
1,2,4,5-Tetrachlorobenzene	5	ND 1	ND 1	ND 1	ND 1	ND 1	ND 1	ND 1
Hexachlorocyclopentadiene	2	-	-	-	-	-	-	-
1,2,3,4-Tetrachlorlobenzene	32	ND 1	ND 1	ND 1	ND 1	ND 1	ND 1	ND 1
Volatiles (µg/L)								
Benzene	-	ND 1	ND 1	ND 1	ND 1	ND 1	ND 1	ND 1
PCBs (µg/L)								
Aroclor-1016	-	-	-	-	ND 0.05	ND 0.05	ND 0.05	ND 0.05
Aroclor-1221	-	-	-	-	ND 0.05	ND 0.05	ND 0.05	ND 0.05
Aroclor-1232	-	-	-	-	ND 0.05	ND 0.05	ND 0.05	ND 0.05
Aroclor-1242	-	-	-	-	ND 0.05	ND 0.05	ND 0.05	ND 0.05
Aroclor-1248	-	-	-	-	ND 0.05	ND 0.05	ND 0.05	ND 0.05
Aroclor-1254	-	-	-	-	ND 0.05	ND 0.05	ND 0.05	ND 0.05
Aroclor-1260	-	-	-	-	ND 0.05	ND 0.05	ND 0.05	ND 0.05
Metals (µg/L)								
Mercury	-	-	-	-	-	-	-	-

Notes:
PCBs Polychlorinated Biphenyls
ND Non-detect at associated value.
J Associated value is estimated.
- Not Analyzed.

APPENDIX C

SEWER CONFIGURATION AT SAMPLE LOCATIONS

APPENDIX C
SEWER CONFIGURATION AT SAMPLE LOCATIONS

OUTFALL 001

Sample Location 1-1 (MH 585)

MH 585 is located south of Adams Avenue, east of Building V-68. Although portions of the brick chamber have been grouted there was still some groundwater infiltration into the manhole, estimated to be approximately 0.25 gpm. Four inlet sewers to the manhole were noted: a 36-inch diameter concrete sewer entering from the north from MH 520, a 4-inch diameter HDPE sewer entering from the northeast, believed to drain condensate from building U-67, a 6-inch diameter HDPE cooling water sewer entering from the east, and a 6-inch diameter abandoned sewer entering from the east. The outlet for the manhole is a 36-inch diameter concrete sewer which extends south to MH 584.

Sample Location 1-2 (MH 518)

MH 518 consists of a concrete chamber with no evidence of groundwater infiltration observed. There were two inlets to MH 518; a 24-inch diameter concrete sewer from the north (i.e., T-Area) and the 12-inch diameter HDPE sewer from the east (i.e. U-Area) The outlet for this manhole was a 36-inch diameter concrete sewer which extends south and eventually discharges the flow to MH 585 and then to the River.

OUTFALL 003

Sample Location 3-1 (MH 2)

MH 2 is located south of Building V-61, approximately 35 feet south of MH 1. The manhole has a concrete chamber with no evidence of groundwater infiltration. The manhole has a 36-inch diameter HDPE inlet from MH 1 to the north as well as a 4-inch diameter forcemain

entering from the west at the top of the chamber. The outlet for the manhole is a 36-inch diameter HDPE pipe which heads south to the 003 Outfall Monitoring Station.

Sample Location 3-2 (MH 1)

MH 1 is located in Adams Avenue, south of Building V-61. The manhole has a concrete chamber with no evidence of groundwater infiltration. There are two inlets to the manhole; a 36-inch diameter concrete sewer from the west and the 24-inch diameter steel forcemain outlet from the east. The outlet from the manhole is a 36-inch diameter HDPE sewer going south to MH 2 and then on to the 003 Outfall Monitoring Station.

Sample Location 3-3 (NEW MH)

The NEW MH is a recently constructed manhole installed in July 1995 to replace MH 716. The new manhole was installed to eliminate potential NAPL infiltration in some of the contributing sewers to MH 716. MH 716 had three inlet sewers; a 24-inch diameter sewer from MH 681 to the north, and two 14-inch diameter sewers from the south, one from MH 770, and one from MH 773. With the construction of the new manhole, the 14-inch diameter sewer from MH 773 was eliminated (i.e. abandoned), and the other remaining 14-inch diameter and 24-inch diameter sewers were replaced with new HDPE sewers (12-inch diameter each) connecting to the new manhole. The NEW MH has a concrete chamber with no evidence of groundwater infiltration. The NEW MH chamber for MH 716A was constructed around the existing 36-inch diameter sewer that runs between MH 716 and MH 1 with the top of the 36-inch sewer removed to allow water to enter the 36-inch sewer from the two new HDPE sewer laterals from MH 681 and MH 770.

Sample Location 3-4 (MH 681)

MH 681 is located north of Adams Avenue, and west of Building V-61. There are three inlets to the manhole; a 12-inch diameter

sewer from the north, a 21-inch diameter sewer from the northeast, and an abandoned 8-inch diameter steel pipe from the northwest. The outlet for the manhole was a 24-inch diameter sewer to MH 716 but that sewer was plugged and replaced with the installation of a 12-inch diameter HDPE sewer directing flow south to the NEW MH. The water level in the manhole is surcharged to within approximately 3 feet of the rim due to the raised elevation of the new 12-inch diameter HDPE outlet sewer and as a result it was difficult to assess whether there was groundwater infiltration.

Sample Location 3-5 (MH 684)

MH 684 is located at the northwest corner of Building V-61. The manhole has a brick chamber with no evidence of groundwater infiltration. It was noted that there was approximately 2-inch of sediment in the bottom of the manhole. There were 4 inlet sewers to the manhole; a 4-inch diameter clay sewer from the southwest, a 6-inch diameter clay sewer from the northeast, a 21-inch diameter clay sewer from the east, and a 6-inch diameter steel sewer from the east. The outlet for the manhole is a 24-inch diameter clay sewer that runs southeast to MH 681.

Sample Location 3-6 (MH 433)

MH 433 has a brick chamber with no evidence of groundwater infiltration. The manhole has 2 inlets; a 15-inch diameter concrete sewer from the north and a 24-inch diameter clay sewer from the east. The outlet from the manhole is a 21-inch diameter clay sewer running east to MH 434.

Sample Location 3-7 (MH 429)

MH 429 has a brick chamber with some groundwater infiltration. The manhole has two inlets; a 10-inch diameter concrete sewer from the east and a 24-inch diameter clay sewer from the north. The outlet is a 24-inch diameter clay sewer taking flow south to MH 430. There was 2-inches of sediment noted in the bottom of the manhole.

OUTFALL 004

Sample Location 4-1 (MH 93E)

MH 93E is located on the southwest corner of the intersection of 47th St. and Energy Boulevard. The manhole has a brick chamber with no evidence of groundwater infiltration. The manhole has 4 inlets; a 4-inch diameter steel sewer entering from the northeast, a 30-inch diameter clay sewer entering from the east, a 6-inch diameter clay sewer entering from the southeast, and an abandoned 30-inch diameter sewer entering from the south. The outlet for the manhole is a 36-inch diameter concrete sewer directing flow off-Site, north along 47th Street.

Sample Locations 4-2 and 4-3 (MH 97)

MH 97 has a brick chamber with some groundwater infiltration. The manhole has 3 inlets; an 18-inch diameter concrete sewer entering from the northeast, a 24-inch diameter clay sewer entering from the south and a 4-inch diameter steel sewer entering from the south. The outlet for the manhole is a 24-inch diameter clay sewer that carries the flow east to MH 93B.

OUTFALL 005

Sample Location 5-1 (H-20 Lift Station)

The forebay of the H-20 Lift Station was the location for Sample 5-1. The flow from MH 56E enters the forebay which is open to the exterior of the building prior to the flow entering the wet well which is inside Building H-20.

Sample Location 5-2 (MH 226)

MH 226 is located in middle of the intersection, southwest of Building H-20, and west of Building H-15. The manhole has a concrete chamber in good condition with no evidence of groundwater infiltration. The manhole has two inlet sewers; a 12-inch diameter concrete entering from the south, and a 21-inch diameter concrete sewer entering from the east. The outlet for the manhole is a 24-inch diameter concrete sewer that takes the flow north to MH 56J which then directs it into the H-20 Lift Station.

Sample Location 5-3 (MH 217)

MH 217 is located on the east side of 47th Street, to the east of Building A-1. The manhole has a concrete chamber with no evidence of groundwater infiltration. There is one inlet to the manhole which is a 36-inch diameter concrete sewer entering from the northeast, and the outlet is a 36-inch diameter concrete pipe which exits to the south and directs flow to MH 56H.

Sample Location 5-4 (MH 211)

MH 211 is located approximately 4 feet south of Building B-29. The manhole has a concrete chamber in good condition with no evidence of groundwater infiltration. There were two inlets to the manhole; an 8-inch diameter steel sewer entering from the north and a 21-inch diameter concrete sewer entering from the east. The outlet for the manhole is a 24-inch diameter concrete sewer exiting to the west, carrying the flow to MH 212.